1-18-00

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PATENT
Docket No. L&C-9901

jc525 U.S. PTO 01/14/00

jc584 U.S. PTO 09/483317 01/14/00

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231

## NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of
Inventor(s): **Bo-In Lin**

**WARNING:** Patent must be applied for in the name(s) of all the actual inventor(s). 37 CFR 1.41(a) and 1.53(b).

For (title): **GRAPHIC-AIDED DOCUMENT-REVIEW MANAGEMENT SYSTEM**

### 1. Type of Application

This new application is a(n) (check one applicable item below):

X Original
_ Design
_ Plant

**WARNING:** Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. 371(c)(4) unless the International Application is being filed as a divisional, continuation or continuation-in part Application.

*NOTE*: If one of the following 3 items apply then complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED.

_ Divisional
_ Continuation
_ Continuation-in-part (CIP)

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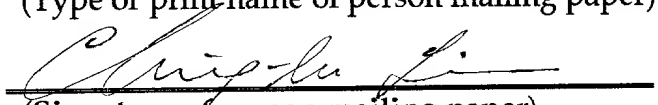
**CERTIFICATION UNDER 37 CFR 1.10**

I hereby certify that this New Application Transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service on this date **January 14, 2000** in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number **EJ007320070US** addressed to the : Commissioner of Patents and Trademarks, Washington, D.C. 20231.

**Ching-lu Lin**
(Type or print name of person mailing paper)



**(Signature of person mailing paper)**

*NOTE*: Each paper or fee referred to as enclosed herein has the number of the "Express Mail" mailing label placed thereon to mailing. 37 CFR 1.10(b).

**2. Benefit of Prior U.S. Application(s) (35 USC 120)**

*NOTE*: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., then check the following item and complete and attach ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

X The new application being transmitted claims the benefit of prior U.S. application(s) and enclosed are ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

**3. Papers Enclosed Which Are Required For Filing Date Under 37 CFR 1.53(b) (Regular) or CFR 1.153 (Design) Application**

12 Pages of specification
8 Pages of claims
1 Pages of Abstract
9 Pages of Drawings
__ formal
X informal

**WARNING:** DO NOT submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted the Office. **Only one copy is required or desired.** Comments on proposed new 37 CFR 1.84. Notice of March 9, 1988 (1990 O.G. 57-62).

*NOTE*: "Identify indicia such as the serial number, group and unit, title of the invention, attorney's docket number, inventor's name, number of sheets, etc., not to exceed 2 3/4 inches (7.0 cm.) in which may be placed in a centered location between the side edges within three fourths inch (19.1 mm.) of the top edge. Either this marking technique on the front of the drawing is acceptable." Proposed 37 CFR 1.84 (1). Notice of March 9, 1988 (1090 O.G. 57-62)

**4. Additional papers enclosed**

_ Preliminary amendment
_ Information Disclosure Statement
_ Form PTO-1449
_ Citations
_ Declaration of Biological Deposit
_ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
_ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
_ Special Comments
_ Other

5. Declaration or oath

X Enclosed

executed by (*check all applicable boxes*)

X inventor(s).

_ legal representative of inventor(s) . 37 CFR 1.42 or 1.43

_ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached

_ this is the petition required by 37 CFR 1.47 and the statement required by 37 CFR 1.47 is also attached. *See item 13 below for fee.*

_ Not Enclosed.

**WARNING:** Where the filing is a completion in the U.S. of an International Application but where a declaration is not available or where the completion of the U.S. application contains subject matter in addition to the International Application the application may be treated as a continuation or continuation-in-part as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.

_ Application is made by a person authorized under 37 CFR 1.41 (c) on behalf of *all* the above named inventor(s). The declaration or oath, along with the surcharge required by 37 CFR 1.16 (e) can be filed subsequently.

*NOTE:* It is important that all the correct inventor(s) are named for filing under 37 CFR 1.41 (c) and 1.53 (b).

6. Inventorship Statement

**WARNING:** If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.

**The inventorship for all the claims in this application are:**

X The same

**or**

_ Are not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made.

_ is submitted

_ will be submitted.

7. Language

NOTE: An application including a signed oath or declaration may be filed in a language other than English. A verified English translation of the non-English language application and the processing fee of $30.00 required by 37 CFR 1.17(k) is required to be filed with the application or within such time as may be set by the Office. 37 CFR 1.5(d).

NOTE: A non-English oath or declaration in the form provided or approved by the PTO need not be translated. 37 CFR 1.69(b).

X English

_ non-English

_ the attached translation is a verified translation. 37 CFR 1.52(d).

8. **Assignment**

__An assignment of the invention to _____

__ is attached

_ will follow

NOTE: "If an assignment is submitted with a new application, send two separate letters-one for the application and one for the assignment" Notice of May 4, 1990.

**9. Certified Copy**

Certified cop(ies) of application(s)

_____

(country) (appl.no.) (filed)

**from which priority is claimed**

**_ is (are) attached . A separate "ASSIGNMENT COVER LETTER ACCOMPANYING NEW PATENT APPLICATION" is also attached**

**_ will follow.**

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37CFR 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35USC120 is itself entitled to priority from a prior foreign application then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

**10 Fee Calculation (37 CFR 1.16)**

**A X Regular application**

| CLAIMS AS FILED | | | | | |
|---|---|---|---|---|---|
| Number filed | Number Extra | | | Rate | Basic Fee $760.00 |
| Total Claims 37 CFR 1.16(c) | 21-20 = | 1 | x | $18.00 | 18.00 |
| Independent Claims (37CFR 1.16(b)) | 4 -3 = | 1 | x | $ 78.00 | 78.00 |
| Multiple dependent claim(s), if any (37 CFR 1.16(d)) | | | | $260.00 | 0.00 |

**_ Amendment Cancelling extra claims enclosed.**

**_ Amendment deleting multiple-dependencies enclosed.**

**_ Fee for extra claims is not being paid at this time.**

note: If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37CFR1.16(d).

**Filing fee calculation** $ 856.00

B. _ Design application
($310.00 - 37 CFR 1.16(f))

**Filing fee calculation** $_____

C _ Plant application
($510.00 - 37 CFR 1.16(g))

**Filing fee calculation** $_____

**11. Small Entity Statement(s)**

_X Verified Statement(s) that his is a filing by a small entity under 37 CFR 1.9 and 1.27 is (are) attached.

Filing Fee Calculation (50% of **A, B,** or **C** above) $____428.00

*NOTE*: any excess of the full fee paid will be refunded if a verified statement and a refund request are filed within 2 months of the date of timely payment of a full fee. 37 CFR 1.28(a).

**12. Request for International-Type Search (37 CFR 1.104(d))** ( *complete, if applicable*)

_ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

**13. Fee Payment Being Made At This Time**

_ Not Enclosed

_ No filing fee is to paid at this time. (*This and the surcharge required by 37 CFR 1.16(e) can be paid subsequently.*)

X Enclosed

X basic filing fee $_____428.00

_ recording assignment ($40.00; 37 CFR 1.21(h)) $_____0.00

_petition fee for filing by other than all the inventors or person on behalf of the inventor where inventor refused to sign or cannot be reached. ($120.00; 37 CFR 1.47 and 1.17(h)) $_____

_ for processing an application with a specification in a non-English language. ($300.00; 37 CFR 1.52(d) and 1.17(k)) $_____

_ processing and retention fee ($130.00; 37 CFR 1.53(d) and 1.21(l))

_ fee for international-type search report ($40.00; 37 CFR 1.21(e)) $_____

NOTE: 37 CFR 1.21(l) establishes a fee for processing and retaining any application which is abandoned for failing to complete the application pursuant to 37 CFR 1.53(d) and this, as well as the changes to 37 CFR 1.53 and 1.78, indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid or the processing and retention fee of 1.21(l) must be paid within 1 year from notification under 53(d).

**Total fees enclosed** $ _____428.00

**14. Method of Payment of Fees**

X Check in the amount of $ 428.00

_ Charge Account No. in the amount of $_____. A duplicate of this transmittal is attached.

*NOTE*: Fees should be itemized in such a manner the it is clear for which purpose the fees are paid. 37 CFR 1.22(b).

**15. Authorization to Charge Additional Fees**

**WARNING**: if no fees are to be paid on filing the following items should **not** be completed.

**WARNING**: Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

X The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 12-0005.

X 37 CFR 1.16(a), (f) or (g) (filing fees)

X 37 CFR 1.16(b), (c) and (d) (presentation of extra claims)

*NOTE*: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 CFR 1.16(d)) it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

_ 37 CFR 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later then the filing date of the application)

_ 37 CFR 1.17 (application processing fees)

**WARNING**: While 37 CFR 1.17(a),(b) (c) and (d) deal with extensions of time under 1.136(a) this authorization should be made only with the knowledge that: "Submission of the appropriate extension fee under 37 C.F.R. 1.136(a) is to avail unless a request or petition for extension is filed." (Emphasis added). Notice of November 5, 1985 (1060 O.G. 27)

_ 37 CFR 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 CFR 1.311(b))

*NOTE*: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 CFR 1.311(b).

*NOTE*: 37 CFR 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application...prior to paying, issue fee". From the wording of 37 CFR 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

**16. Instructions As to Overpayment**

_ credit Account No.

X refund

Reg. No.33,948

**SIGNATURE OF ATTORNEY**

Bo-In Lin

Type or print name of attorney

Tel. No. (415) 949-0418

P.O. Address : **13445 Mandoli Drive, Los Altos Hills, CA 94022**

X **Incorporation by reference of added pages**

Check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR A NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED

X Plus Added Pages For New Application Transmittal Where Benefit Of Prior U.S. Application(s) Claimed

Number of pages added One

_ Plus Added Pages For Papers Referred To In Item 4 Above

Number of pages added _____

_ Plus "Assignment Cover Letter Accompanying New Application"

Number of pages added _____

__ **Statement Where No Further Pages Added**

*(If no further pages form a part of this Transmittal then end this Transmittal with this page and check the following item)*

__ This transmittal ends with this page

0054P1D-V1E3E4P0

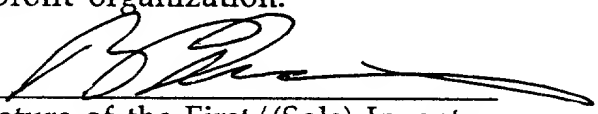
## In the United States Patent and Trademark Office

First/Sole Applicant: Bo-In Lin
Docket No. L&C-9901

Title: GRAPHIC-AIDED DOCUMENT-REVIEW MANAGEMENT SYSTEM

## Small Entity Declaration - INDEPENDENT INVENTOR(S)

I hereby declare that I am an independent inventor as defined in Section 1.9(c) of 37 CFR. I have not assigned, granted, conveyed or licensed, and am under no obligation under contract or law to assign, grant, convey, or license any rights in the invention to any person who could not likewise be classified as an independent inventor if that person had made the invention, or to any concern which would not qualify as small business concern or a nonprofit organization.



Signature of the First/(Sole) Inventor

January 14, 1999
Date

Docket No. L&C-9901

# GRAPHIC-AIDED DOCUMENT-REVIEW MANAGEMENT SYSTEM

This Application is benefited from a previously filed Provisional Patent Application 60/115,919 filed on January 14, 1999.

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

This invention relates generally to document review management system. More particularly, this invention relates to a graphic-based document review management system wherein textual descriptions of each graphic element are arranged for display together with the graphic element to provide enhanced document review and examination.

### 2. Description of the Prior Art

The arrangement of a document with graphic illustrations shown on different pages from relevant text descriptions often causes inconvenience in reading and understanding the contents of the document. Flipping back and forth between pages in attempt to correlate the textual descriptions to various graphic elements located on different pages often requires extra times and efforts. Particular example is a patent document where the drawings, e.g., Fig. 1A, are included in first part of the patent, typically starting from second page, as drawings of various preferred embodiments. While the description of these preferred embodiments are included in the last part of the patent document as that shown in Fig. 1B. Review of a patent document requires a document reviewer to simultaneously read the texts and view the drawings in parallel. Often, it is inconvenient not only because the document is required to flip back and forth between different parts of the document, but also relevant textual sections are also dispersed at different parts of the document. Especially, in a patent document, a claimed element may be described in the Detail Description of Preferred Embodiment, and then presented in several claims. The Examiner must review the drawings and

the textual descriptions to determine if the claims have sufficient support. Such review must be carried out in greater details, particularly if the questions are related to how the elements are claimed. Even though the drawings are included in a patent document, it is often inconvenient and cumbersome to make best use of the drawings due to the arrangement of separating the drawings into particular section from the textual descriptions and the claims. Referring also to Figs. 1C and 1D for drawings included in a technical paper and a technical manual. Again, a document reviewer has to search among many sections of document to find relevant descriptions of particular graphical elements to gain understanding of the descriptions.

Advancements in computer search and document management do not yet benefit or help the tasks performed by a Patent Examiner of patent document reviewer. The "search engines" and "document linkers" or "desktop publishing" systems can link and associate textual or graphic terms between different documents, or can insert graphic drawings into different parts of the documents. However, none of these systems is provided to arrange and present the relevant information and data related to a particular graphical element for the convenience of review and understanding by relating or linking the textual descriptions or claimed terms to a corresponding graphic element.

Rivette et al. disclosed in U.S. Patent 5,991,751 and 5,991,780 a system, method and computer program product for displaying a patent document and a patent image. The system and method are useful in reducing the stress in review a document by displaying the text in a side-by-side display page. However, a document reviewer is still required to look "left-and-right" to compare the textual descriptions with the displayed image for understanding the content of the documents. Simultaneous and side-by-side displays are not sufficient to completely resolve the difficulties faced by a document reviewer. Specifically, the spatial distance between the displayed graphic elements and the textual descriptions including the name of each displayed element prevents a direct and immediate association.

Therefore, there is still a need in the art of document management and information presentation to provide a document configuration with particular arranged presentation for conveniently reviewing and examining a document. The document configuration is arranged such that the review and examination of the document is aided by the graphic elements included in the document. The automatic link generation systems and techniques, which are commonly available in the market, may be employed to link textual descriptions included in various sections of a document to a graphic element. Presentation of drawings together with the textual descriptions immediately near the graphic elements and also the claim languages may then be displayed when commanded by a document reviewer. The inconvenience and difficulties in reviewing and examining a document may then be resolved.

## SUMMARY OF THE PRESENT INVENTION

It is therefore an object of the present invention to provide a document management system for linking and presenting each of the graphical elements with associated textual descriptions and related claimed elements in the claims in a patent application such that the aforementioned difficulties and inconveniences can be resolved.

Specifically, it is an object of the present invention to provide a novel document management and presentation system to search and link textual descriptions and elements in different claims of a patent document associated with each of the alpha-numeral designations of the graphic elements. A link is first established between each of the alpha-numeral designations for each of the graphical elements to a naming-term of a first textual description associated with that alpha-numeral designation. Then all related descriptions for that particular naming-term are linked and gathered in a list file for that graphic element. The list file can then be displayed along with the associated graphic element for convenience of document review.

Another object of the present invention is to provide a novel graphic-based document review system by providing user options to either review the drawings with textual descriptions or claim languages of a patent document displayed in a text box next to a related graphic element. Or, a document reviewer may enter a naming-term to invoke a graphic presentation related to that naming-term and all the associated descriptions and/or claim languages for that naming-term in a text box next to the graphic element associated with that naming-term.

Briefly, in a preferred embodiment, the present invention includes a document management system. The document management system includes a document reading means for reading a document having textual descriptions and at least a drawing consisted of graphic elements each designated with an associated alpha-numeral designation. The document reading means is further provided for converting the document to a plurality of processor-recognized elements. The document management system further includes a search and link means for searching the processor-recognized elements and linking each of the graphic elements with at least one associated segment of textual description. The document management system further includes a display means for displaying the drawing with each of the graphic elements displayed together with the associated segment of textual description. In a preferred embodiment, the search and link means for searching and linking the associated segment of textual description for each of the graphic element further includes a document-location-finder means for locating a column number, a page number, and a line-range number for the associated segment of textual description. The display means is further provided for displaying the column number, the page number, and the line-range number for the segment of textual description for each of the graphic elements.

These and other objects and advantages of the present invention will no doubt become obvious to those of ordinary skill in the art after having read the following detailed description of the preferred embodiment which is illustrated in the various drawing figures.

## BRIEF DESCRIPTION OF THE DRAWINGS

Figs. 1A is a typical patent drawing included in the first part of the patent document;

Fig. 1B shows a relevant descriptions for the drawing of Fig. 1A printed on a last part of the patent document;

Figs. 1C to 1D are drawings included in a technical paper and a technical manual generally separated from the sections of descriptions related to the graphical elements;

Fig. 2 is a functional block diagram of a document management system according to the present invention;

Fig. 3 is a flowchart for illustrating the processing steps for carrying out a document management process of this invention; and

Figs. 4A to 4C show a graphic presentation with better correlation between the textual descriptions and the relevant graphic element as processed by the document management system of this invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Fig. 2 is a functional block diagram for illustrating a document management system 100 of this invention. The document review management system includes a document reading means 110 for receiving a document either in processor-recognizable form, i.e., commonly called soft-copy or electronic-copy, or a hard-copy, e.g., a paper copy. The document management system 100 further includes a document preprocessing means 115 for converting the input document on a hard copy to a processor recognizable form. The input document after it is converted to its processor-recognizable form also includes the graphic element each associated with a processor-recognizable alpha-numeral designation. The alpha numeral designation for each graphic element is

either a numeral designation most commonly used in the drawings of a patent document (Fig. 1A) or a textual name often used in a technical paper (Fig. 1C), or user manuals (Fig. 1D).

The document management system 100 further includes a search and link means 120. The search and link means 120 applies each of the alpha-numeral designations for each of the graphic elements to perform a search and link operation. A search is first performed to search for a naming-term for an alpha numeral designation. For a patent document, the designation of a graphic element is usually a numeral designation. A naming-term associated with that numeral designation is first searched and identified. The document management system further includes a linking database 130. For each identified naming-terms or an alpha-numeral designation, the entire document is searched to establish an associated text-file and all of these text files are stored in the linking database. The document system further includes a user interface means 140, which could be graphic user interface (GUI) to receive user command to perform different document management functions. The document management system 100 further includes a display means 150 that could be a monitor of a personal computer for showing the graphic display of the document and the associate text descriptions. In a typical preferred embodiment, the document pre-processing means 115, the search and link means 120, the lining database 130, the user interface means 140 and the display means 150 are incorporated in a personal computer (PC). And, the document reading means 110 is a document scanner 110 for scanning a document and generates an output to the PC for further textual and graphic processing.

Fig. 3 is a flow chart for illustrating the processing steps carried out by the document management system 100 for providing a graphic-based review version of an input document that includes several sections having textual descriptions and drawings. The document management process begins (step 200) by reading the document and converting the textual and graphic elements of the documents into processor recognizable textual and graphic elements (step 205). The processor-recognizable textual and

graphic elements are then processed by the search and link means 120 to search the document by using the alpha-number designations of each of the graphical elements to identify a naming-term in the section of the textual descriptions for each graphic element (steps 210). With a specific naming-term identified for each graphic element, further searches are conducted over the entire document to establish a link database 130 to provide a list. The list links every sentence in the document containing a reference of either the naming-term or the alphanumerical designation of each graphic element (step 215). For each sentence in the document for a graphic element, the link database further lists the column, e.g., column 4, or page number, e.g., page 135, and also the line number, e.g., lines 20 to 25, to identify the location of that description related to the graphic element. The document management system 100 further provides to a user a graphic user interface (GUI) for a document reviewer to input commands for providing various kinds of graphic-based document review presentations (step 220). In responding to the user commands, a graphic-based document review presentation is displayed on the display means of the document management system 100 (step 225).

Fig. 4A is an exemplary display of a graphic-based review-document as processed by the document management system of this invention. For each graphic element, a user has several options for selecting a graphic representation of each drawing included in the document. These options are describe below:

1) A user can select to display a drawing with each of the alpha-numeral designations displayed side-by-side with a naming-term as that shown in Fig. 4A.
2) A user can then select one or several graphic elements by double clicking on the alpha-numeral designation or the naming-term to display a textual-description box next to the graphic element. The textual description box will also display the column number, page number and line number for each textual description to provide location of these relevant textural descriptions in the document. An alpha-number designation may include a drawing designation such as "Fig. 4A". Upon a user's double click on "Fig. 4A" the textual

description box will display relevant textual description for "Fig. 4A". For a patent document, the claim number and line number will also be shown associated with the naming term associated with the alpha-numeral designation (See Fig. 4B).

3) A user is also provided with an option to input a user-selected naming-term as input. In response to the user-selected input naming-term, the document management system will link to one or several drawings of the document associated with the user-selected naming-term. (See Fig. 4C) The document management system will show the first drawing associated with the user-selected naming-term. The document management system will also show all the naming-terms associated with all the alpha-numeral designations of that drawing. The user then has the options to examine more drawings and the detail descriptions for each of the graphic element based on options 1) or 2) above. The display means 150 of the document management system 160 further provides a highlight display for the graphic elements for each of the naming terms. The highlight display may be in special color, special bold profile of the graphic elements or a flashing display for each of the graphic elements when user point a cursor to a particular naming-term in the textual description box shown side by side with the drawing or drawings.

A Patent Examiner is often encountered with the requirements of linking all the claimed elements to supporting descriptions, either textual or graphical, provided in the entire document. The document management system 100 as disclosed here can conveniently aid and enhance the examination of a patent document. In addition to the benefits of more conveniently linking the textual descriptions to the graphical elements in the documents, the document management will aid to the quality of document examination. This is because better understanding of the document will be enhanced with presentations between the textual descriptions correlated to the graphic elements showing as graphical presentations. For patent examination, a Patent Examiner can easily find out if any term included in a claim is supported in the Specification or

Drawings by entering that term to invoke a graphic display and the column and line numbers for description of that term.

According to Figs. 2 to 4 and above descriptions, a document management system is disclosed. The document management system includes a document reading means 110 for reading a document having textual descriptions and at least a drawing consisted of graphic elements each with an associated alpha-numeral designation. The document reading means 110 is further provided for converting the document to a plurality of processor-recognized elements. The document management system further includes a search and link means 120 for searching the processor-recognized elements and linking each of the graphic elements with at least one associated segment of textual description. The document management system 100 further includes display means 150 for displaying the drawing with each of the graphic elements displayed together with the associated segment of textual description. In a preferred embodiment, the search and link means 120 for searching and linking the associated segment of textual description for each of the graphic element further includes a document-location-finder means for locating a column number, a page number, and a line-range number for the associated segment of textual description. The display means 150 is further provided for displaying the column number, the page number, and the line-range number for the segment of textual description for each of the graphic elements. In another preferred embodiment, the document management system further includes a user interface 140 provided for allowing a user to input a naming-term. The inputted naming-term invokes the search and link means 120 for searching and linking the naming-term to an associated segment of textual description and for displaying a report of finding the associated segment of textual description. In another preferred embodiment, the document management system 100 further includes a user interface 140 provided for allowing a user to input a user-selected naming-term to invoke the search and link means for searching and linking the naming-term to an associated segment of textual description for the user-selected naming-term. And, the display means 140 is further provided for displaying a

drawing having a graphic element linked with the associated segment of textual description for the user-selected naming-term when the associated segment of textual description for the user-selected naming-terms is found.

In summary, this invention discloses a document management system for reading a document having textual descriptions and at least a drawing consisted of graphic elements. The document management system includes a display means 140 for displaying the drawing with each of the graphic elements displayed together with an associated segment of textual description as portion of the textual descriptions. In another preferred embodiment, the display means is further provided for displaying for each of the graphic elements a column number, a page number, and a line-range number along with the segment of textual description located in the document. In another preferred embodiment, the document management system further includes a user interface 140 provided for allowing a user to input a naming-term. The user inputted naming-term invokes the document management system for searching and linking the naming-term to an associated segment of textual description and for displaying on the display means a status report of finding the associated segment of textual description.

This invention further teaches a method of document management. The method includes the steps of a) employing a document reading means for reading a document having textual descriptions and at least a drawing consisted of graphic elements each with an associated alpha-numeral designation; b) converting the document to a plurality of processor-recognized elements; c) employing a search and link means for searching the processor-recognized elements and linking each of the graphic elements with at least one associated segment of textual description; and d) employing a display means for displaying the drawing with each of the graphic elements displayed together with the associated segment of textual description. In a preferred embodiment, the step c) of employing the search and link means for searching and linking the associated segment of textual description for each of the graphic element further includes a step

of employing a document-location-finder means for locating a column number, a page number, and a line-range number for the associated segment of textual description. And, the step d) of employing the display means for displaying the associated segment of textual descriptions with the graphic elements further displaying the column number, the page number, and the line-range number for the segment of textual description for each of the graphic elements. In another preferred embodiment, the method further includes a step of e) employing a user interface for allowing a user to input a naming-term to invoke the search and link means for searching and linking the naming-term to an associated segment of textual description and for displaying a report of finding the associated segment of textual description.

Therefore, the present invention provides a document management system for linking and presenting each of the graphical elements to associated textual descriptions and related claimed elements such that the difficulties and inconveniences are resolved. Specifically, the present invention provides a novel document management and presentation system to search and link textual descriptions and elements in different claims of a patent document associated with each of the alpha-numeral designations of the graphic elements. A link is first established between each of the alpha-numeral designations for each of the graphical elements to a naming-term of a first textual description associated with that alpha-numeral designation. Then all related descriptions for that particular naming-term are linked and gathered in a list file for that graphic element. The list file can then be displayed along with the associated graphic element for convenience of document review. A novel graphic-based document review system is disclosed by providing user options to either review the drawings with textual descriptions or claim languages of a patent document displayed in a text box next to a related graphic element. Or, a document reviewer may enter a naming-term to invoke a graphic presentation related to that naming-term and all the associated descriptions and/or claim languages for that naming-term in a text box next to the graphic element associated with that naming-term.

Although the present invention has been described in terms of the presently preferred embodiment, it is to be understood that such disclosure is not to be interpreted as limiting. Various alternations and modifications will no doubt become apparent to those skilled in the art after reading the above disclosure. Accordingly, it is intended that the appended claims be interpreted as covering all alternations and modifications as fall within the true spirit and scope of the invention.

Docket No. 9901

## CLAIMS

I Claim:

1. A document management system comprising:

a document reading means for reading a document having textual descriptions and at least a drawing consisted of graphic elements each with an associated alpha-numeral designation, wherein said document reading means is further provided for converting said document to a plurality of processor-recognized elements;

a search and link means for searching said processor-recognized elements and linking each of said graphic elements with at least one associated segment of textual description; and

a display means for displaying said drawing with each of said graphic elements displayed immediately next to said associated segment of textual description.

2. The document management system of claim 1 wherein:

said search and link means for searching and linking said associated segment of textual description for each of said graphic element further includes a document-location-finder means for locating a column number, a page number, and a line-range number for said associated segment of textual description; and

said display means is further provided for displaying said column number, said page number, and said line-range number for said segment of textual description for each of said graphic elements.

Under the Paperwork Reduction Act of 1995

3. The document management system of claim 1 further comprising:

a user interface provided for allowing a user to input a naming-term to invoke said search and link means for searching and linking said naming-term to an associated segment of textual description and for displaying a report of finding said associated segment of textual description.

4. The document management system of claim 1 further comprising:

a user interface provided for allowing a user to input a user-selected naming-term to invoke said search and link means for searching and linking said naming-term to an associated segment of textual description for said user-selected naming-term; and

said display means is further provided for displaying a drawing having a graphic element linked with said associated segment of textual description for said user-selected naming-term when said associated segment of textual description for said user-selected naming-terms is found.

5. The document management system of claim 2 further comprising:

a user interface provided for allowing a user to input a naming-term to invoke said search and link means for searching and linking said naming-term to an associated segment of textual description and for displaying a report of finding said associated segment of textual description and said column number, said page number, and said line-range number for said associated segment of textual description.

6. The document management system of claim 2 further comprising:

a user interface provided for allowing a user to input a user-selected naming-term to invoke said search and link means for searching and linking said naming-term to an associated segment of textual description for said user-selected naming-term; and

said display means is further provided for displaying a drawing having a graphic element linked with said associated segment of textual description and said column number, said page number, and said line-range number for said associated segment of textual description for said user-selected naming-term when said associated segment of textual description for said user-selected naming-terms is found.

7. A method of document management comprising:

a) employing a document reading means for reading a document having textual descriptions and at least a drawing consisted of graphic elements each with an associated alpha-numeral designation;

b) converting said document to a plurality of processor-recognized elements

c) employing a search and link means for searching said processor-recognized elements and linking each of said graphic elements with at least one associated segment of textual description; and

d) employing a display means for displaying said drawing with each of said graphic elements displayed together with said associated segment of textual description.

Docket No. 9901-5

8. The method of document management of claim 1 wherein:

said step c) of employing said search and link means for searching and linking said associated segment of textual description for each of said graphic element further includes a step of employing a document-location-finder means for locating a column number, a page number, and a line-range number for said associated segment of textual description; and

said step d) of employing said display means for displaying said associated segment of textual descriptions with said graphic elements further displaying said column number, said page number, and said line-range number for said segment of textual description for each of said graphic elements.

9. The method of document management of claim 1 further comprising:

e) employing a user interface for allowing a user to input a naming-term to invoke said search and link means for searching and linking said naming-term to an associated segment of textual description and for displaying a report of finding said associated segment of textual description.

10. The method of document management of claim 1 further comprising:

e') employing a user interface for allowing a user to input a user-selected naming-term to invoke said search and link means for searching and linking said naming-term to an associated segment of textual description for said user-selected naming-term; and

f) employing said display means for displaying a drawing having a graphic element linked with said associated segment of textual description for said user-selected naming-term when said associated segment of textual description for said user-selected naming-terms is found.

11. The method of document management of claim 7 further comprising:

e") employing a user interface for allowing a user to input a naming-term to invoke said search and link means for searching and linking said naming-term to an associated segment of textual description and for displaying a report of finding said associated segment of textual description and said column number, said page number, and said line-range number for said associated segment of textual description.

12. The method of document management of claim 7 further comprising:

e"') employing a user interface for allowing a user to input a user-selected naming-term to invoke said search and link means for searching and linking said naming-term to an associated segment of textual description for said user-selected naming-term; and

f') employing said display means for displaying a drawing having a graphic element linked with said associated segment of textual description and said column number, said page number, and said line-range number for said associated segment of textual description for said user-selected naming-term when said associated segment of textual description for said user-selected naming-terms is found.

13. A document management system for reading a document having textual descriptions and at least a drawing consisted of graphic elements, comprising:

a display means for displaying said drawing with each of said graphic elements displayed together with an associated segment of textual description as portion of said textual descriptions.

14. The document management system of claim 13 wherein:

said display means is further provided for displaying for each of said graphic elements a column number, a page number, and a line-range number along with said segment of textual description located in said document.

15. The document management system of claim 13 further comprising:

a user interface provided for allowing a user to input a naming-term to invoke said document management system for searching and linking said naming-term to an associated segment of textual description and for displaying on said display means a status report of finding said associated segment of textual description.

16. The document management system of claim 13 further comprising:

a user interface provided for allowing a user to input a user-selected naming-term to invoke said document management system for searching and linking said naming-term to an associated segment of textual description for said user-selected naming-term; and

said display means is further provided for displaying a drawing having a graphic element linked with said associated segment of textual description for said user-selected naming-term when said associated segment of textual description for said user-selected naming-terms is found.

17. The document management system of claim 14 further comprising:

a user interface provided for allowing a user to input a naming-term to invoke said document management system for searching and linking said naming-term to an associated segment of textual description and for displaying a status report of finding said associated segment of textual description and said column number, said page number, and said line-range number for said associated segment of textual description.

18. The document management system of claim 14 further comprising:

a user interface provided for allowing a user to input a user-selected naming-term to invoke said document management system for searching and linking said naming-term to an associated segment of textual description for said user-selected naming-term; and

said display means is further provided for displaying a drawing having a graphic element linked with said associated segment of textual description and said column number, said page number, and said line-range number for said associated segment of textual description for said user-selected naming-term when said associated segment of textual description for said user-selected naming-terms is found.

19. A method for reading and managing a document having textual descriptions and at least a drawing consisted of graphic elements, comprising:

employing a display means for displaying said drawing with each of said graphic elements together with an associated segment of textual description as portion of said textual descriptions.

20. The method of reading and managing said document of claim 19 wherein:

said step of displaying said drawing with each of said graphic elements together with an associated segment of textual description further includes a step of displaying for each of said graphic elements a column number, a page number, and a line-range number along with said segment of textual description located in said document.

21. The method of reading and managing said document of claim 19 further comprising:

employing a user interface for allowing a user to input a naming-term to invoke a document management system for searching and linking said naming-term to an associated segment of textual description and for displaying on said display means a status report of finding said associated segment of textual description.

Docket: 5,930,796

## ABSTRACT

A document management system is disclosed in this invention. The document management system includes a document reading means for reading a document having textual descriptions and at least a drawing consisted of graphic elements each with an associated alpha-numeral designation. The document reading means is further provided for converting the document to a plurality of processor-recognized elements. The document management system further includes a search and link means for searching the processor-recognized elements and linking each of the graphic elements with at least one associated segment of textual description. The document management system further includes a display means for displaying the drawing with each of the graphic elements displayed together with the associated segment of textual description. In a preferred embodiment, the search and link means for searching and linking the associated segment of textual description for each of the graphic element further includes a document-location-finder means for locating a column number, a page number, and a line-range number for the associated segment of textual description. The display means is further provided for displaying the column number, the page number, and the line-range number for the segment of textual description for each of the graphic elements.

Express Mail Label No. EV339655025US

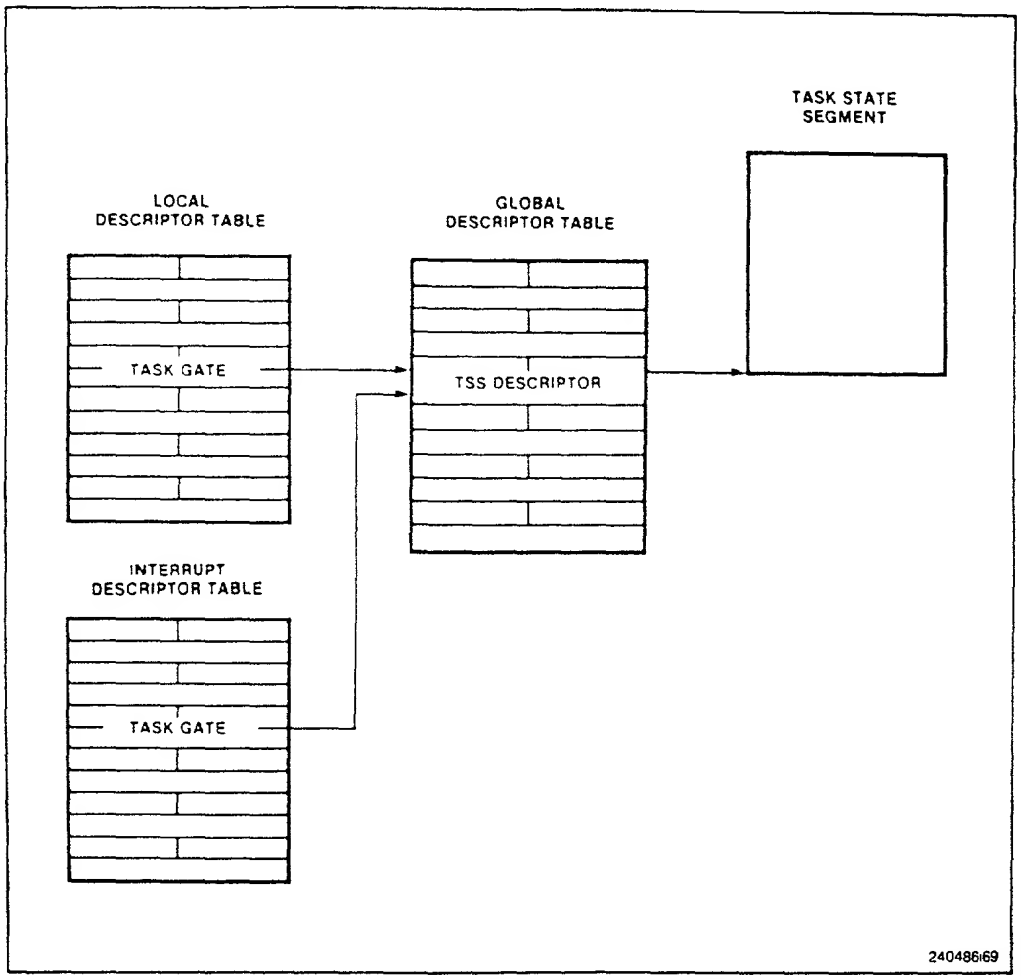



**Figure 7-5. Task Gates Reference Tasks**

An interrupt service routine always returns execution to the interrupted procedure, which may be in another task. If the NT flag is clear, a normal return occurs. If the NT flag is set, a task switch occurs. The task receiving the task switch is specified by the TSS selector in the TSS of the interrupt service routine.

A task switch has these steps:

1. Check that the current task is allowed to switch to the new task. Data-access privilege rules apply to JMP and CALL instructions. The DPL of the TSS descriptor and the task gate must be greater than or equal to both the CPL and the RPL of the gate selector. Exceptions, interrupts, and IRET instructions are permitted to switch tasks regardless of the DPL of the destination task gate or TSS descriptor.

Fig. 1 D: PRIOR ART

Fig. 2

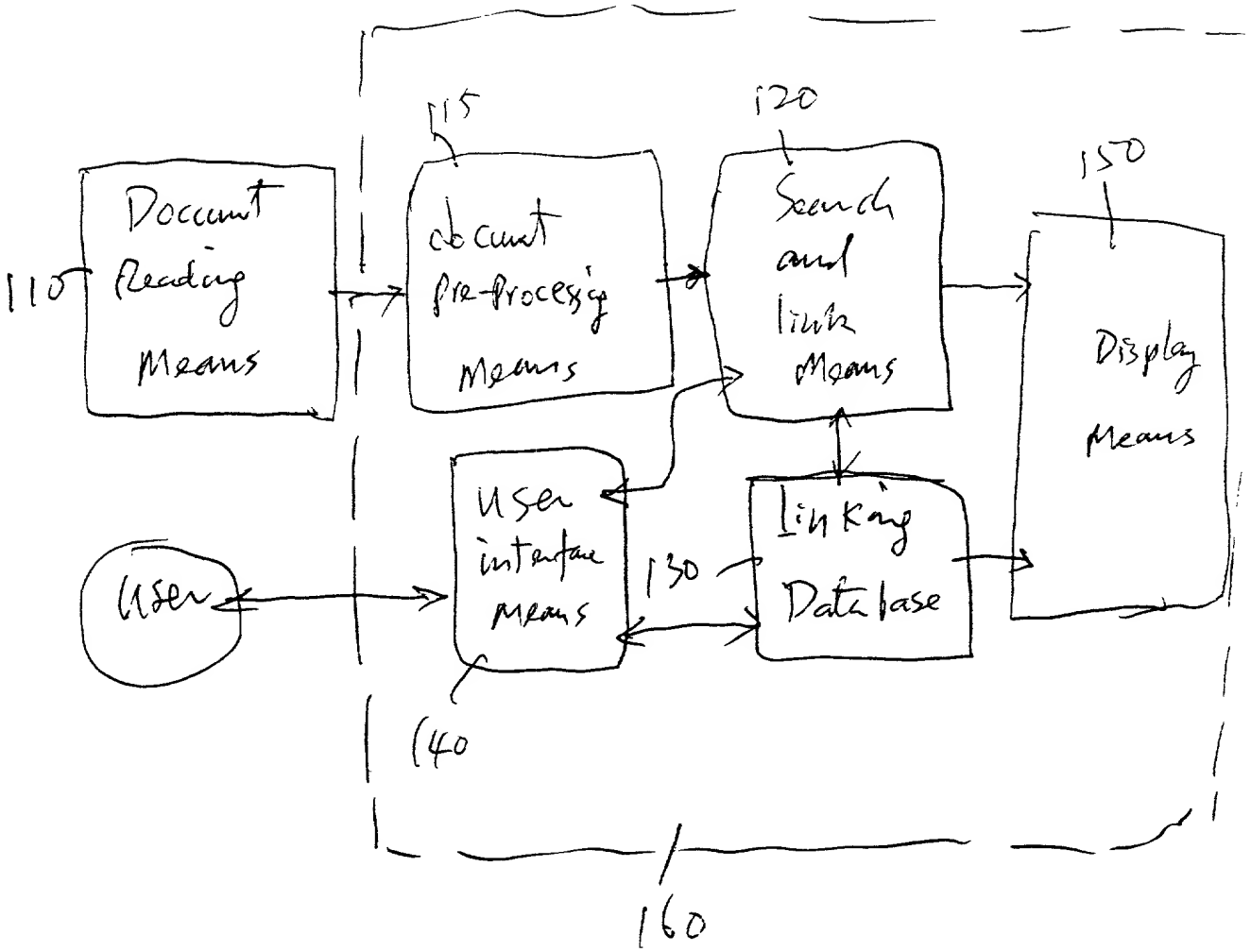
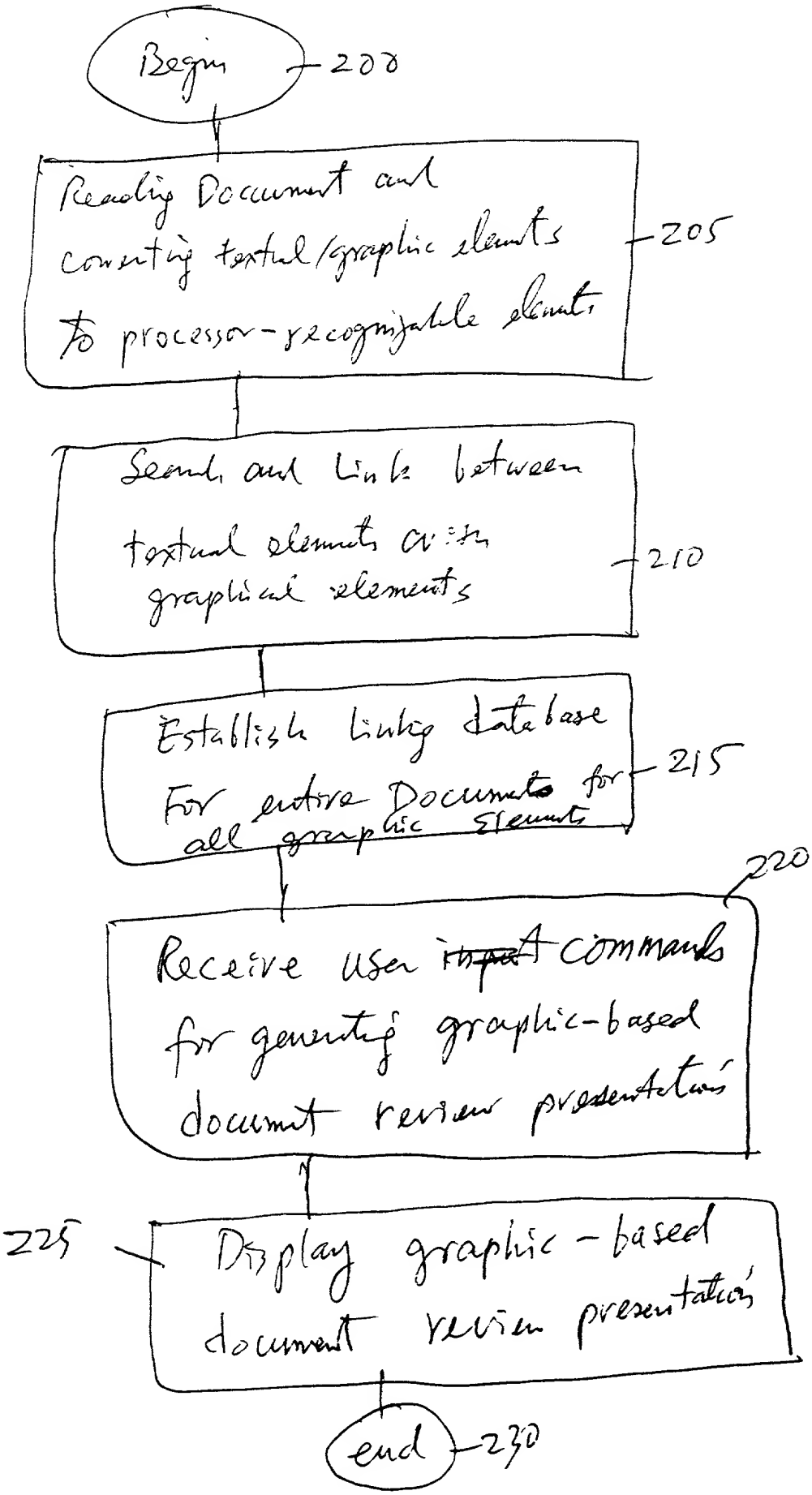

Document Reading Means
110
document pre-processing means
115
Search and link Means
120
Display means
150
User interface means
130
Linking Database
User
140
160

Fig. 3.


Begin
200
Reading Document and converting textual/graphic elements to processor-recognizable elements
205
Search and Link between textual elements and graphical elements
210
Establish linking database For entire Document for all graphic elements
215
220
Receive User ~~input~~ commands for generating graphic-based document review presentation
225
Display graphic-based document review presentation
end
230

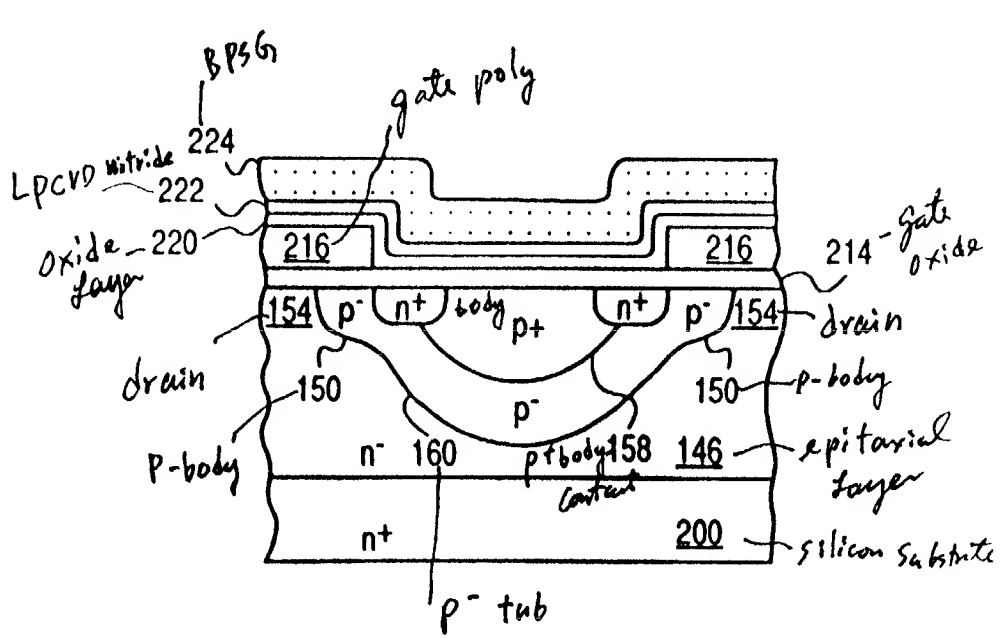



FIG. 16A

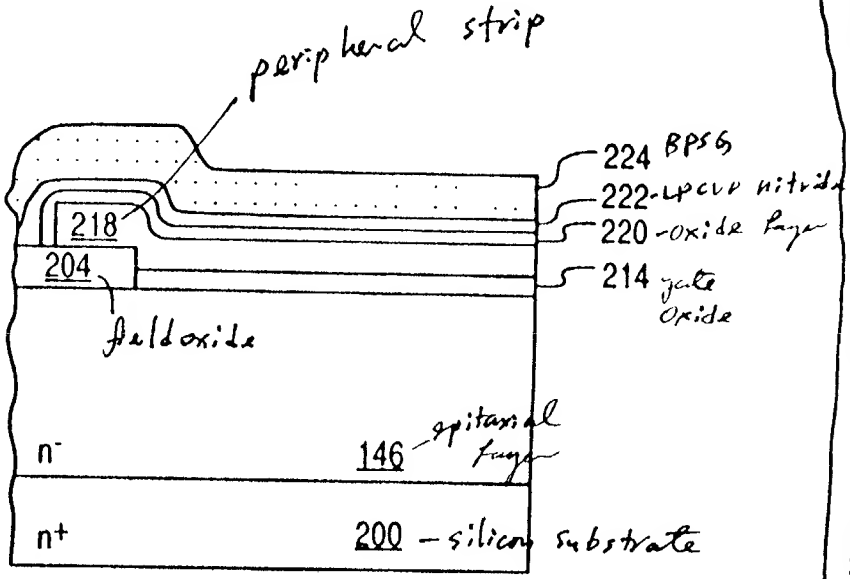



FIG. 16B

Fig. 4A.- Every Graphic Element Shown with Numerical

Fig. 4B - Naming Term BPSG shown with Textual Description Box



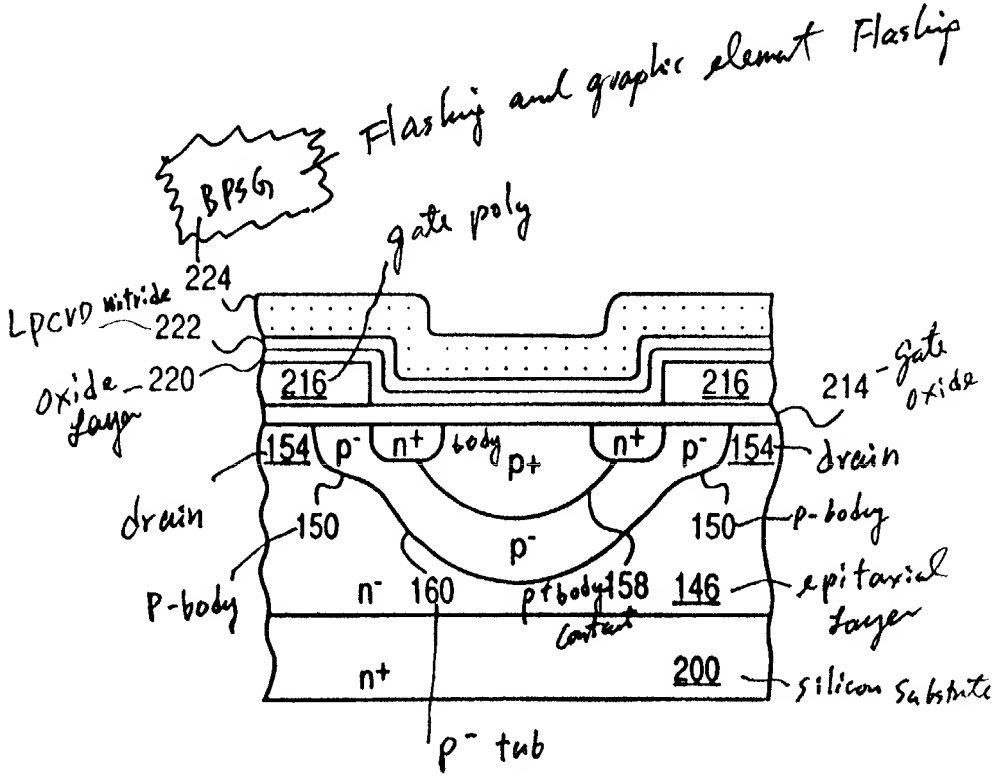



FIG. 16A

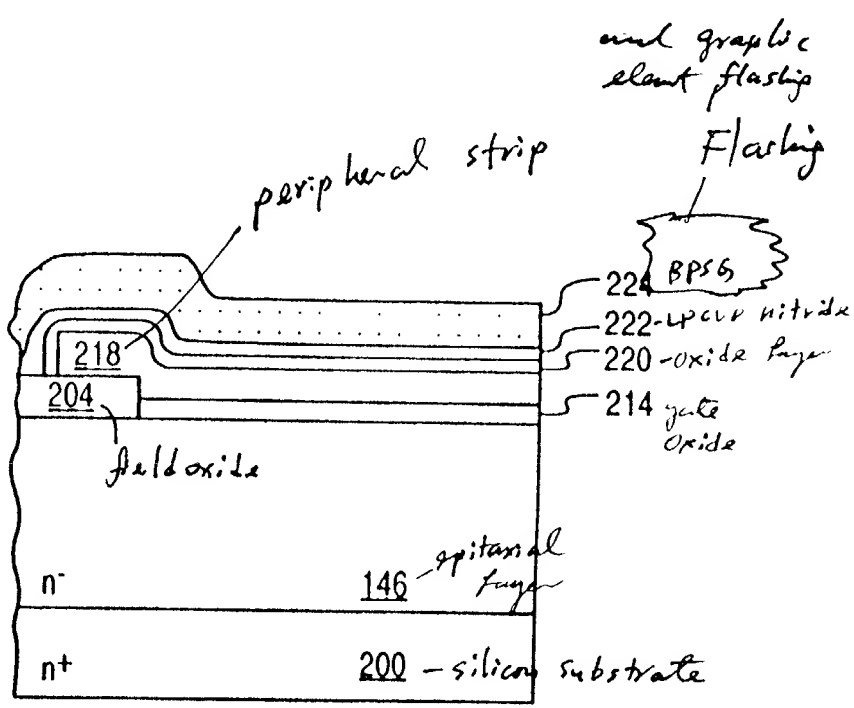


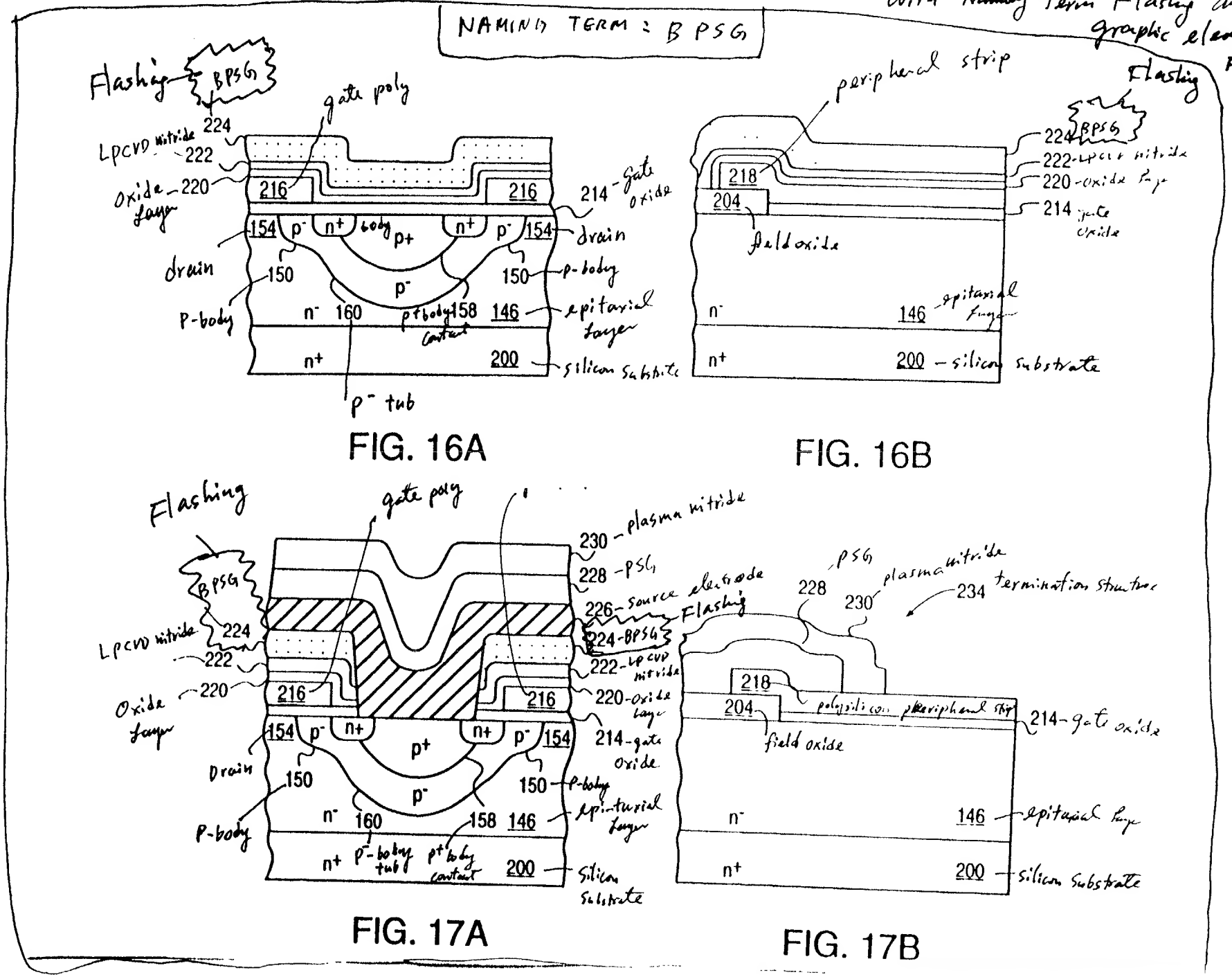

FIG. 16B

Naming term : BPSG

Textual Description Box

col. 5, lines 50-54 The device is completed by depositing (optionally) about 1000 Angstroms of LPCVD nitride 222 followed by a BPSG deposition of about 0.8-1.3 microns and a BPSG reflow 224 at about 850-1000 degrees C (FIG. 16)

Fig. 4 Co: Naming Term BPSG. shown with Multiple Drawings with Naming term Flashig and graphic element Flashig



Docket No.L&C-9901

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

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the specification of which (check one)
_X_ is attached hereto.
__ was filed on_____as Application Serial No._____and was amended on _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

| Prior Foreign Application(s) | | | Priority Claimed |
|---|---|---|---|
| | | | __ Yes __ No |
| (Number) | (Country) | (Day/Month/Year Filed) | |

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

| 60/115,919 | January 14, 1999 | Pending |
|---|---|---|
| (Application Serial No.) | (Filing Date) | (Status) (patented, pending, abandoned) |

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

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Docket No.L&C-9901

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Residence:

Citizenship:

Post office address:

Full name of third joint-inventor:

Inventor's signature: Date:

Residence:

Citizenship:

Post office address:

Full name of fourth joint-inventor:

Inventor's signature: Date:

Residence:

Citizenship:

Post office address:

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